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ABSTRACT

The report reviews the recommendations made in an earlier study of occupational education in Massachusetts. The report stresses the need at the secondary level for broadly-conceived inter-disciplinary programs which effectively integrate occupational experiences with all general education values, and recommends 50 percent State funding for such programs. It suggests that Occupational Institutes be formed in existing vocational schools to provide programs and resources for occupational, adult, and cooperative education. It recommends that community colleges assume responsibility for post-secondary career programs, under regional planning committees chaired by community college presidents. The report recommends the formation of an institute of occupational education to develop materials for both teacher education and occupational programs, and incorporate the most recent findings about teaching and learning into teacher education methods. It recommends that the State Department of Education administer and serve occupational programs in all schools at all levels K-14, articulate its efforts with other appropriate agencies, and annually report on State manpower needs. The report finally recommends that the State Board of Education define and enforce minimum opportunity standards for occupational education in all communities. James J. Hammond's paper "On Teacher Education for Occupational Education" is included. (JR)

MAR 24 1975

**MASSACHUSETTS ADVISORY COUNCIL
ON EDUCATION**

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Report of the Advisory Committee
on the Schaefer-Kaufman Recommendations

entitled

**OCCUPATIONAL EDUCATION
FOR MASSACHUSETTS**

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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FOREWORD

Occupational Education is a problem in all of the States. There is not enough of it. It is often not the right kind, and it fails to reach thousands of youth who are in our comprehensive high schools who are not preparing for college or a job.

While Massachusetts pioneered in vocational education and is developing some excellent vocational and regional vocational schools, it is not meeting the needs of our people, and it is falling behind several large industrial states in the proportion of its youth receiving occupational education. Unfortunately there is a serious lack of communication and cooperation among the "general education establishment" who educate most of our youth and the "vocational education establishment" which educates the few and controls the Federal and State funds for occupational education. There is a crisis of confidence, and the situation is not getting better. Added to the conflicts is one over funds and programs between the community college system which furnishes 90% of public occupational education to high school graduates and the "vocational educational establishment".

In consequence, the Advisory Council on Education mounted its study of Vocational Education in July 1967. It engaged Dr. Carl J. Schaefer of Rutgers University and Dr. Jacob J. Kaufman of Pennsylvania State University to conduct the study. In the fall of 1968 they issued their 295 page report, Occupational Education for Massachusetts, and a summary report, Better Options, Better Lives.

Drs. Schaefer and Kaufman did identify the problems in Massachusetts including those already listed. Because the subject is so complex, the system of vocational education in the state so unsettled, and the Schaefer-Kaufman forty-nine recommendations did not grow indigenously from wide participation by Massachusetts educators, the Advisory Council appointed a committee to review the recommendations and to report to the Council its judgments as to which should be adopted or extended, which should be modified, and which rejected.

The Committee listed on the cover met first in December 1968. It met fourteen times in three to four hour sessions in 1969 and twice more in 1970 - a total of seventeen meetings. It has reviewed the major recommendations of Drs. Schaefer and Kaufman and reacted to them, but the Committee has gone further in a number of directions. Its recommendations which follow are succinct. They are arranged in priorities. Major conflicts have been faced and largely resolved or compromised. Readers should note the diversity of the committee and its representativeness. The long months of meetings for so many hours have resulted in remarkable unanimity about what should be done and who should do it.

There is a full range of responsibility and opportunity for all segments and parts of the education system. All are important and need

to form a sufficient, articulated, coordinated occupational education program. The time for hurt, isolation and competition is past.

Obviously, commitment to priorities differs. It is here that the major unfinished business of planning and implementing is to be faced. The Commissioner of Education and his associate commissioners for curriculum and instruction and occupational education have certain and heavy responsibilities in getting the State program underway on all fronts. It will take three to five years to develop full programs in the high schools. The Chancellor of the Board of Higher Education and the President of the Board of Regional Community Colleges also have heavy responsibilities. The needs of the youth and adults for occupational education are real, great and related. The State needs a coordinated comprehensive system including a large new complex of teacher education programs. The Boards of Education, Higher Education and Trustees of Regional Community Colleges and their staffs must see that such a system develops out of the conflicts, frustrations, insufficiencies and imbalances that exist today.

The Committee points out that its analyses and recommendations are not a literary document. They have been hammered out under pressure. It has seemed more important that they be made available now than that they undergo further refinement and editing. The thrust of the recommendations is action. They spell out what should be done and by whom.

The Advisory Council expresses its gratitude to the members of the Committee for their heavy commitment of time and for their striving to arrive at a meaningful consensus. It notes also with gratitude that Mr. William A. Dwyer, Superintendent-Director, Blue Hills Regional Vocational School and Mr. Ghernot Knox, Assistant Director, the Bureau of Vocational Education, participated in a number of meetings. The Council hopes that school and college people throughout the State will read these recommendations and join in implementing them. It hopes that they will be of real assistance to all state leaders and to the Governor's Advisory Council on Vocational Education and the Massachusetts Commission for Occupational Education. These bodies can do much to set priorities and insist upon implementation. Finally, the Council looks forward to the report of its Study of Comprehensive High Schools with the hope that its findings and recommendations will give further clarity and emphasis to the program for occupational education.

William C. Gaige
Director of Research

MASSACHUSETTS ADVISORY COUNCIL ON EDUCATION

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April 1970

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A VOCATIONAL EDUCATION SYSTEM,
ORGANIZATION AND PROGRAMS FOR THE COMMONWEALTH

1. A Revised Curriculum for our General High Schools

The most important recommendation of Schaefer and Kaufman consists of a cluster of recommendations aimed at revising the so-called general curriculum in our comprehensive high schools. They recommend as follows:

"All occupationally-oriented curricula should be classified in two broad categories: Careers Development and Vocational Preparation.

CAREERS DEVELOPMENT CURRICULUM

"The Careers Development Curriculum would serve the great mid-group of students, those held back by socio-economic background or who lack interest or talent in purely academic or purely vocational pursuits. This is the pool of students that produces the most drop-outs. They could be identified early and by ninth grade it is usually clear which students should be contained in this large grouping.

"The Careers Development Curriculum should be non-graded, should involve an occupational cluster system and should be elected by students from grades 9 through 12. Some of these students will surely "spin-off" into the Institutes for Educational Development, which would train highly-skilled specialists.

"The occupations to be considered in the Careers Development Curriculum should include: Building Construction, Transportation and Power, Business and Office, Distributions occupations, Health occupations, Industrial and Fabrications, Foods and Kindred, Agricultural occupations, Communications, Information Storage and Retrieval. Team teaching should prevail throughout the curriculum."

The committee generally concurs with Schaefer and Kaufman in their analysis of the need for much more and quite different occupational education, particularly for that large number of youth in our comprehensive high schools who are not now preparing for college or for a job. Its position is as follows:

1. The Careers Development Curriculum

Any general education that does not include meaningful reference to experiences in and contributions of the world of work is incomplete. All curricula therefore should have incorporated in them such experiences and values. In particular the curriculum for the 40 to 60 percent of high school students now enrolled in the general curriculum should be radically revised. The Committee concurs with Schaefer and Kaufman in recommending that the revised curriculum be called the Careers Development Curriculum. The revision should effectively integrate the full contribution of occupa-

tional endeavors with all other general education values. Existing subject matter divisions should be restructured into effective units of a broadly conceived inter-disciplinary program. The proposed structure should be oriented to universal themes, seminal problems rather than topics of specialized subject matter. Ideally each student, with adequate guidance, would pursue a program especially suited to his needs, interests and purposes.

While occupational knowledge and skill should be a major factor in the Careers Development Curriculum; indeed they give it its name, a second equally major factor consists of other general education goals and content. The Careers Development Curriculum seeks to combine the elements of both factors into a balanced educational program most uniquely suited to the needs and interests of 40 to 60 percent of high school age students. In fact the goals and methods of this curriculum must be appropriately incorporated in junior high school programs, and foundations for them established in elementary programs. (These last two are subjects for study beyond the scope of these recommendations).

Recommendations for arriving at the nature, combination, content, and methodology of this program appear in a later section. It is beyond the assignment or the capacity of this Committee to do more than to recommend a process or alternatives for arriving at them.

Nevertheless, the Careers Development Curriculum is different from existing programs. It cannot be forced into existing molds, and yet it is an important and integral part of occupational education. Being a new venture and being more expensive than purely academic education, it requires special funding which is discussed in a later section.

Like Schaefer and Kaufman, this Committee recommends a cluster concept of broad occupational fields. Some of the broad occupational fields are: health, distributive occupations, secretarial or accounting occupations, trade and industrial occupations (the building trades, for instance), electronics occupations. A given curriculum would not require a ninth or tenth grade student to be in laboratories or shops and related academic work of a given cluster, health occupations for instance, for 50 percent of his time if the program is to be funded as occupational education. Nor does it mean that one or two periods a day in such activities is sufficient to establish a Careers Development Curriculum entitled to funding as occupational education. Rather a base program comprising at least 50 percent of the students' time must be carefully developed. It will include as much as 25 percent of the school day in laboratories, shops or other non-verbal activities. These activities will be more broadly based than a single occupational cluster. They will include industrial arts activities, or home economics activities, or arts and crafts activities or combinations of these and others. These activities will be integrated with appropriate mathematics, social sciences, and science processes and projects. A team of teachers working together will relate and integrate all activities and then seek to guide students into them in accordance with their needs and abilities.

As the student progresses toward graduation the vocational thrust of his curriculum will concentrate more on the particular cluster and its related academic work until in the senior year in most cases the concentration will

encompass at least 50 percent of the school day.

Ideally the Careers Development Curriculum will encompass the entire program of the youth. However, such comprehensiveness allows for electives of particular interest and value to the student in such areas as art, music, politics, citizenship, and specific preparation for advanced education. Where possible such general education work will be related to the occupational concentration, but this should not be required.

2. Lateral Movement - Open Options

The aim of the Careers Development Curriculums is essentially the same as for any good education--the fullest development of the student. The fullest development requires free lateral movement, open options. There should be as few limitations as possible to the movement of students from one curriculum or program to another--from college preparation to careers development programs and back to college preparation.

Free lateral movement suggests the breakdown of rigid requirements and standards of the various curriculums or tracks. Ideally the course of study for each student in the high school should be tailored to his needs. Community colleges accept reasonably promising students into their transfer programs whether or not they have had foreign languages, laboratory sciences or algebra and geometry. Some four year colleges will accept such students. If the individual tailoring of study is adopted as recommended for the Careers Development Curriculums, some students in them may be qualified to go directly into four year colleges. Hopefully the same condition would pertain in the Occupational Institutes and Centers discussed in later items.

3. Reorganizations of Our General High Schools

The high school should be reorganized to achieve the goals of the careers development curriculum. There should be an assistant principal or director in charge of occupational programs which should consist of a division of the school. This division should be organized into departments or programs, one for each cluster.

4. The Required Faculty

The specialized faculty for each of these programs should be headed by a chairman who acts as teaching team leader for all the instructors involved in the particular program. They should be specialized occupational instructors, many of whom may be drawn from existing programs of industrial arts, home economics, business education, etc. and instructors from the academic disciplines. The assistant principal or director and the team leaders should have early and intensive, specialized instruction as to the aims of the curriculum and as to the aims, skills, materials and equipment of their particular program. They should have intensive instruction concerning individualized scheduling and instruction and how to lead the teams of teachers in the various modern methods of instruction. Where possible paraprofessionals and specialists outside the school should be used. Where possible resources and personnel from Occupational Centers and Institutes should be used to assist in organizing and instructing the programs.

5. Reorganization and Rescheduling for the New Programs

The available shops and laboratory resources in the schools must be reorganized and rescheduled for the new programs. Plans should be drawn for conversion of conventional classrooms and other spaces into appropriate shops and laboratories. Resources in the community or in nearby towns and cities should be sought. Flexibility of scheduling can make possible their use.

6. Under Leadership of the State Department of Education, Colleges and Universities Organize to Assist

Schaerer and Kaufman recommend a separate Bureau for Careers Development Programs located outside the Division of Occupational Education in the Division of Curriculum and Instruction. This Committee rejects this separation, but acknowledges the reason for such a recommendation--to assure the uniquely different and dual nature of the Careers Development Curriculum.

The Committee chooses instead to recommend strongly that the Associate Commissioner for Occupational Education assume full responsibility for the implementation and development of the Careers Development Curriculum programs in the high schools of the state. He should assign appropriate personnel to carry out the State Department's responsibilities in developing policies, curriculum, methodological materials. The Associate Commissioner should see to the creation of an "in house" committee of persons drawn from all divisions or bureaus to assist in the activities and to assure the full contribution of the entire Department.

The Associate Commissioner should cooperate with the Board of Higher Education or other higher education agencies to assure the appointment of a committee of college and university people, people from the occupations, people from the "occupational education establishment," and others to define the aims of the careers development programs, to identify the resources for in-service teacher programs and to get them organized, first on an emergency basis, and later on a permanent basis.

As soon as the first college and university in-service programs are organized, school systems should be encouraged to associate with one or another to gain assistance in planning their first programs and getting them underway. It is suggested that at first most high schools undertake only one or two of the cluster programs, organizing only one or two teams.

II. Use of the Fifty Percent Reimbursement to Develop New Programs

Current state law provides for 50 percent funding of approved vocational education programs. This policy currently makes it cheaper for the local school district to operate approved vocational education programs than traditional high school programs. Unless the state increases the level of funding of the education aid formula, the present state funding of 50 percent for approved vocational programs simply takes available funds from

support of the general elementary and secondary school programs and assigns them to vocational programs. Communities which operate both types are not better off. Communities operating no approved vocational programs are worse off. The 50 percent funding does encourage the development of vocational programs.

As the 50 percent funding serves to encourage the development of separate vocational schools and in a few cases specific vocational programs within high schools, so too it can be used to encourage the development, staffing and equipping of the Careers Development Curriculums in general high schools which will be more expensive than regular academic programs though less than those in Occupational Centers and Institutes.

The Division of Occupational Education in the State Department of Education should become a partner with school systems and colleges and universities in devising the new and different standards by which careers development programs may become approved for 50 percent funding. The standards should conform to the purposes of the Careers Development Curriculums. On the other hand carefully and professionally set, they can be a powerful force to encourage the development of quality programs using a number of innovative practices.

Fifty percent funding covers all the education activities in approved programs in vocational schools. They should likewise cover all of the education activities in the Careers Development Programs with an important reservation.

The 50 percent funding in the Commonwealth for vocational education is the most generous in the Country. If the difference between 50 percent funding and regular costs for education were appropriated in addition to funds available for distribution under the school aid formula, then the present arrangement would be admirable, if not entirely logical. Under present circumstances this Committee recommends that a proportion of each program, perhaps more than 50 percent which is clearly occupational in nature, including related academic work, be approved for 50 percent funding. This is the new and expensive proportion. The aim would thus be achieved to encourage occupational education of all sorts and to pay its added cost, while those portions which are similar to conventional academic programs would be funded as they are. The distribution of educational funds would thus be more equitable or more economical. It should be noted that this recommendation approaches that of Schaefer and Kaufman for the Careers Development Curriculum, but is quite different for Occupational Institutes (vocational schools).

This committee approves the 50 percent funding by the state as modified above and commends the Legislature and vocational education leadership for developing it. Nevertheless occupational education requires good education of all types. To drain off funds from basic elementary and secondary education to support occupational education is short sighted. This Committee recommends the early revision of the state education aid program to provide for the funding of at least 35 percent of the average cost of all public elementary and secondary education and such additional funds as are required

for categorical aid programs including 50 percent funding of approved occupational aid programs. The Committee commends the Governor and the Legislature for establishing full funding of the present equalization aid formula, but points out that this increased aid to poorer communities does not come close to providing sufficient funds to assure that poorer communities shall or can equalize educational standards and opportunities.

Schaefer and Kaufman, with considerable logic, recommend that the State take over and operate and fund the present vocational and regional vocational schools which they would rename Institutes of Educational Development. They argue that equality of support throughout the State would be assured and that the State could more easily administer the institutes in accordance with recommended goals and practices.

The Committee rejects both the name Institutes of Educational Development and State control. Rather it recommends that the vocational schools be renamed Occupational Institutes (described in section III). It favors 50 percent funding under local control because these schools are already integral parts of many city and regional systems and several are well established and flourishing under the present system. There will be problems of equating financial responsibilities in regional districts, but if other recommendations of the Committee are followed, they will not be insurmountable.

The Committee concurs with Schaefer and Kaufman in the desirability of equality of opportunity through State support and for the important need for full articulation between the high school programs and the institute programs.

Schaefer and Kaufman recommend that the State should reimburse communities with Careers Development Curriculums in comprehensive high schools for the difference between the average cost of educating students in academic programs and the higher cost of the Careers Development programs. (The difference between \$584 and \$700 per student.)

III. Articulation and Enrichment Through Occupational Resources Centers in Occupational Institutes

1. In every school system, or available to it, should be one or more Vocational Education Resources centers. These Centers should be the existing vocational or regional vocational schools expanded and renamed Occupational or Regional Occupational Institutes. In addition to their own educational programs, the institutes should assist the comprehensive or general high schools to plan, develop, and instruct their Careers Development Curriculums for 40 to 60 percent of their students. They should make available skilled instructors and specialists to assist in in-service education of teachers and to participate to some degree in actual instruction. They should make available special counseling, library and informational services and instructional media. While normally resources should flow from the centers to the high schools, some high school students and perhaps some teachers might spend some of their time using the special shops and libraries of the Center. The Centers should be resources not only to high schools but to adult education programs, not conducted by the centers, to adults needing counseling, and to business and industries in the area.

To assure fullest articulation, these Resource Centers should be under the same administration and within the same school district as are the schools and programs they serve. Where this is not so, every effort should be made to coordinate the two systems so that they operate like one, all options to students are open, and lateral movement easy. The State Department of Education should be a partner with the two systems in working out an effective program among equal partners. If necessary, legislation should provide for transfer of funds from one system to another.

While Schaefer and Kaufman recommend articulation between the high school and the Institutes of Educational Development of secondary school students, the committee recommends articulation for all occupational education programs in both types of schools. While students may be moved from the comprehensive high school to occupational centers, the resources of the occupational centers are much more likely to be moved to the comprehensive high school or to any other agency undertaking occupational education.

2. Organization of Occupational Education in the Commonwealth

It is evident that Occupational Institutes and Centers must exist in school systems of sufficient size to make available enough qualified students to utilize fully the faculty, equipment and plant. Because this is true, and because there are many school districts too small to meet these requirements, regional vocational school districts have been created. They are administered separately from the constituent school districts. Their schools are new, well equipped and well administered. Their per student costs are high, and their capacities accommodate only a small portion of the total secondary school population in their constituent towns.

Because a comprehensive school system, centrally administered, can most efficiently and economically offer coordinated, articulated educational programs and services, separate specialized systems should be avoided. State and community leadership should continue to strive to combine smaller communities and systems, including vocational schools and elementary schools, into a single district so that a central secondary school plant can accommodate sufficient students to justify a wide range of programs and services including specific occupational programs.

Where regional vocational schools exist or are in the advanced stage of planning, every effort should be made to coordinate the regional, vocational school programs with those of the constituent high schools. In every sense they should become the vocational resources center described above with educational resources flowing freely from the regional center to the constituent systems and financial resources from the constituent communities to the regional centers. To achieve these goals, it is recommended that a formal committee of the constituent superintendents and high school principals meet regularly to advise the vocational school superintendent-directors and their school committees, and that the superintendent-directors become the legally elected director of occupational education in each constituent community, working under the superintendent and with appropriate relationships with the high school principal.

Sufficiently large existing school systems should be reorganized to encompass all secondary school programs in carefully planned, articulated systems on one or more comprehensive campuses. Such an arrangement is most economical, provides for the easiest lateral movement of students, the most efficient use of resources, and where effectively administered, is most democratic. Unfortunately among small communities such an arrangement, while supported in theory by the large majority of scholars and educators, is seldom in practice and rarely effective. It is understandable why vocational educators, isolated and treated as second-class citizens, have united across the country and succeeded, greatly assisted by control of Federal funds, in creating a separate system whether in regional vocational districts or as enclaves within the city school system.

The fact that educational leaders and teachers have not worked out an effective, articulated system is no reason why it should not yet be done. It is the thrust of these recommendations that Massachusetts organize from the State Department of Education through each school system to provide for fully coordinated, articulated and effective programs under one administration where possible. Plans for the future should be redrawn to comply with this goal, but obviously, existing systems, programs and districts must be taken into consideration, place made for them in the articulated system and their personnel and facilities used fully. The Division of Occupational Education, in cooperation with the Division of School Facilities and Related Services should strive to encourage and to assist small communities to unite into sufficiently large, comprehensive systems. It should join with its fellow bureaus and divisions to encourage and to assist adequately large school systems to unify the organization and administration of all of the secondary school programs with a single, articulated system where vocational education assumes its proper importance as an equal partner in the education of from 30 to 60 percent of the students, depending upon the nature of the community.

The Advisory Council on Education is supporting a study of school district organization through Boston College, under the direction of Dr. Donald T. Donley, Dean of the School of Education. School district organization, whether city or small town, is of overriding importance not only in occupational education but in all education.

Schaefer and Kaufman recommend that there be a system of 30 institutes of educational development. The Committee goes beyond the Schaefer-Kaufman recommendations. It recommends an occupational institute and center for every school system of sufficient size and that all school systems too small to support an occupational center of their own should be served by a regional center.

IV Formal Programs for Preparation for a Specific Occupation Should Exist in the Occupational Institutes

1. There should be available formal programs for preparation for specific occupations. Such programs are now available in limited numbers in vocational and regional vocational schools and in community colleges.

Except for business education programs in general high schools, few of which are approved for 50 percent state funding, there are few such vocational programs available in general high schools. Some of this type of program is available as post-secondary education in vocational schools. A section of Massachusetts law permits, under certain circumstances, the development on top of vocational high schools, of technical institutes and programs which lead to the associate degree of applied science if approved for degree purposes by the Board of Higher Education with the concurrence of the Board of Education. Under a policy adopted by the Board of Higher Education that all degrees in public higher education should be under the jurisdiction of a segmental board within higher education, any potential post-secondary degree programs of technical institutes should be developed jointly with community colleges with the degrees to be issued either by the institution under the Board of Regional Community Colleges, or jointly by that institution and by the institute concerned. This committee approves this policy and strongly urges the boards and school committees to plan occupational programs in accordance with it. The Committee understands that there may be one or more situations where the state of development of community colleges may make it advisable to approve degree programs in a technical institute until such time as they may be conducted cooperatively with a community college or taken over by the community college. The Committee feels strongly that there should be only one system of degree granting programs under the Board of Regional Community Colleges or one of the other higher education boards coordinated by the Board of Higher Education.

Schaefer and Kaufman define programs for the preparation of a specific occupation, as vocational preparation. As such they are to be carried on in a vocational schools renamed institutes of educational development and operated by the State. Schaefer and Kaufman recommend that single occupation programs leading to the associate degrees should be offered only by community colleges. They recommend that all post-secondary education be assigned to community colleges.

2. Coordination of Non-Degree, Post-Secondary and Occupational Adult Programs in the Regions of the State.

a. It is assumed that the Division of Occupational Education under direction of the Boards of Education and Higher Education, particularly the latter, will establish clear definitions of post-secondary education, the requirements of the State for various kinds of programs, and clear guidelines for assigning, establishing, approving and funding programs.

b. Under appropriate written policies, approved by the Boards of Education and Higher Education, concurred in by the Board of Regional Community Colleges, the Associate Commissioner of Education in consultation with the President of the Board of Regional Community Colleges (or vice versa) should establish and appoint a post-secondary coordinating committee in each regional community college area, the total to encompass the entire state. Under the general policies and guidelines for establishing post-secondary and adult occupational education programs, and with staff assistance from the Division or the Community Colleges,

or both, these committees should analyze resources and needs for programs and recommend assignment of programs to the Board of Higher Education, the Board of Regional Community Colleges and the Board of Education.

c. There is a pressing and difficult job requiring extended leadership to assure the quality and appropriate extension of Occupational Education for all of our youth and adults in accordance with their need and that of our Commonwealth society. The Boards of Education, Higher Education, and Regional Community Colleges, particularly the Associate Commissioner for Occupational Education are charged to design as promptly as possible the leadership positions required for the state, and the Legislature is urged to fund them.

Because a major part of the need is pressing and temporary, the Committee recommends the establishment of some temporary positions for the next five years on a one or two year appointment. These might well be joint appointments with universities and colleges or school systems.

V Skill Center Type Programs

When a student gives evidence that he has gone as far as he can or as he desires in a formal occupational career development program or in a regular general educational program, there should be available to him specific concentrated vocational education programs, including where helpful the necessary academic and related subjects, in skill centers throughout the Commonwealth. These skill centers should be located in Occupational Institutes rather than in general high schools. These programs would be available to adults as well as regular school students. Such programs may be also appropriately offered in cooperation with Industry on a cooperative basis. They could be of short or long duration and when approved by the Division of Occupational Education, would be eligible for 50 per cent of reimbursement of the net maintenance cost.

VI The Occupational Institute and Center - A summary

The Occupational Institute whether an integral part of a comprehensive high school or separate in geography and administration should encompass the following:

1. Occupational programs including academic work in preparation for a specific occupation similar to the programs now in operation--and of course new programs. On comprehensive campuses, academic work should be in classes with students from other programs of comparable ability and achievement.
2. Short concentrated, purely vocational programs of from a few weeks to several months as terminal for high school students who will not continue in any program to graduation, and for adults needing upgrading and retraining.
3. Vocational education resources of teachers, counselors, materials and equipment to assist Careers Development Programs in the high school, individual adults and business and industry.
4. Programs for the occupational training of the handicapped.
5. Adult education programs offering the types of education listed under one and two above or combinations of them.
6. Post-secondary, non-degree programs for high school graduates which can best be offered by the centers and which do not unnecessarily duplicate community college programs. These will be extensive.

7. Where desirable, at least as a temporary measure, cooperative programs with Community Colleges leading to the associate degree. Planning for these programs and their facilities must be approved in advance by the Board of Higher Education, the Board of Education concurring that the resources can be spared from the other purposes. The programs themselves would be conducted under the authority of the Board of Regional Community Colleges.

VII. Community Colleges and Post Secondary Occupational Education.

Recapitulation

The reader is referred back to Section IV on pages 10 and 11. Here it is explained that the law permits the development of technical institutes which offer associate degree programs on top of vocational high schools, if such programs are approved by the Boards of Higher Education and Education. It is the policy of the Board of Higher Education that such degree programs should be developed jointly with community colleges. This Committee concurs and feels strongly that there should be only one system of degree granting programs under the Board of Regional Community Colleges. Schaefer and Kaufman also concur, stating that all post secondary, occupational education should be in community colleges. This Committee differs in that it sees an important role for occupational institutes in non-degree, post secondary programs for older youth and adults. The Boards of Education and Higher Education are charged to see to the establishment of "clear definitions of post secondary education, the requirements of the State for various kinds of programs, and clear guidelines for establishing, approving and funding programs."

Under appropriate written policies, approved by the Boards of Education and Higher Education, concurred in by the Board of Regional Community Colleges, the Associate Commissioner of Education in consultation with the President of the Board of Regional Community Colleges (or vice versa) should establish and appoint a post secondary coordinating committee in each regional community college area, the total to encompass the entire state. Under the general policies and guidelines for establishing post secondary and adult occupational education programs, and with staff assistance from the Division or the Community Colleges, or both, these committees should analyze resources and needs for programs and recommend assignment of programs to the Board of Higher Education, the Board of Regional Community Colleges and the Board of Education.

Proportional Enrolment

In 1969-70 the total full time post secondary occupational enrolment in state, county, and local public schools and colleges is about 9,800 of which 500 are in vocational schools, 300 in county agricultural schools and 9000 in community colleges.

Responsibility for Adequate Quality of All Occupational Education Programs

Enrolment in private schools and industrial and business corporations is not known. The Boards of Education and Higher Education, cooperating through the Division of Employment Security and Manpower Development should plan and execute a census of all private occupational programs in the state and a reporting system which will keep such information up to date. The agency into which this information should be fed, stored, and from which regular reports should be issued is probably the Division of Research and Development.

The Boards of Education and Higher Education are responsible for the quality of public education including occupational education. The Board of Regional Community Colleges should be responsible for assuring a satisfactory quality for all public degree granting post secondary occupational education and of such non-degree granting public occupational education as is not agreed to be the responsibility of the Board of Education or is not conducted under another segmental board of public higher education. Each segmental board of higher education should be staffed to assure adequate quality of all occupational programs under its jurisdiction.

The Board of Higher Education should plan and draft legislation which the Legislature should pass which would assign authority and staff to the Board of Regional Community Colleges, or to the Board of Higher Education, to assure an adequate quality of occupational education programs in private degree granting institutions which are not accredited. Visits to these institutions should be made often enough to assure compliance to adequate standards -- not less often than every five years.

The Board of Education does not at present assure that all public occupational education is of adequate quality. It should develop a clear and regular policy of visitation and reports. But of greater importance is the fact that once some private occupational programs are chartered or licensed, there is no agency responsible to protect the public interest by assuring that those schools deliver what they advertise and that their education programs are of adequate quality. The Board of Education should plan and draft legislation which the Legislature should pass which will provide for a policy and staff by which the Board of Education assures adequate quality of all private occupational education programs not accredited. Visits to these institutions should be made often enough to assure compliance to adequate standards -- not less often than every five years.

The Role of Occupational Institutes

This Committee, in an earlier section, has described the role of the Occupational and Regional Occupational Institutes (vocational schools). It has assigned these institutes a responsibility for post secondary and adult education. The central purpose and efforts of the Institutes should be to provide full and part time programs for secondary school youth. Institutes with modern plants and equipment can accommodate only a small portion of the secondary school youth who want their programs during the daytime.

To the extent that faculties and staff are available after meeting the needs of secondary school youth, particularly on late afternoons, nights, Saturdays, and in summers, the institutes should offer occupational programs, not just single courses, to adults and regularly employed youths. Many of these institutes have excellent facilities, and it will be years before all community colleges are on modern campuses with sufficient and adequate equipment and facilities to meet all of the demands of post secondary school youth and adults.

The Role of Community Colleges

But educational planners must keep the facts and goals clearly in view. Statistics from across the country and in Massachusetts reveal without doubt that, where they have a choice, post secondary youth and adults prefer to attend community colleges whose whole purpose is to serve their needs -- a minority to transfer to four year colleges and a majority to prepare for occupations.

Over 9000 of the 9500 enrolled in post secondary public occupational programs are enrolled in community colleges. This in spite of the fact that only one of the present community colleges, Springfield Technical Community College, is on an adequate, permanent campus. The remainder still occupy inadequate temporary campuses whose greatest deficiencies are the lack of modern shops, laboratories, and equipment.

Before 1920 only a minority of students went beyond the eight grade. By 1950 most young people attended high school and over half graduated. The 1930's had seen the extension of mass public education into the 13th and 14th years, notably in California. The increasing number of secondary school graduates and the increasing demands of our technological society are combining to produce a heavy demand for appropriate programs in higher education, and specifically in our system of community colleges.

The 1968 Amendment to the Vocational Education Act of 1963 earmarked 15 per cent of present funding and 25 per cent of new funding for post secondary programs. In the development of the new state plan for occupational education, required under the 1968 Amendment, a significant increase in the role of and in the programs offered by the community colleges is assumed.

Enrolment figures and enrolment projections for the community colleges system illustrate the scope of the problem. The following are the opening fall enrolments in Massachusetts community colleges for two known years and for two projected years:

Fall 1964 Enrolment	Fall 1969 Enrolment	Fall 1975 Enrolment (est)	Fall 1980 Enrolment (est)
7,600	15,600	41,000	53,000

The projection of 53,000 students for 1980 is based on an estimated enrolment of 38,000 in the 12 existing institutions, and on an additional 15,000 in 6 new institutions, the first of which will open in the fall of 1970.

Assumptions

The development of the community college system in Massachusetts is based on the following premises:

1. The community college system as a whole, as well as each of its institutions, will be comprehensive.
2. The full and part time programs of each community college will have an open door admission policy, one under which students who desire it will be admitted despite what may be poor secondary school records and/or test performances. The policy will, in effect, reflect a "second chance" approach--both for the recent secondary school graduate, and for the older person who later decides to continue his education.
3. Students in community colleges will include both high school graduates and those adults who may or may not have high school diplomas but who need and want the programs offered, specifically including occupational programs.
4. The community colleges will seek to meet the manpower needs of Massachusetts through program development, particularly career program development.
5. Given the number of individuals who need career training, and given the present limited combined enrolment capacity of both community colleges and other post secondary career programs available in the Commonwealth, there is a need for all institutions and groups of institutions offering career programs to expand as rapidly as possible.

Estimates based on experience in states which have already developed extensive systems of community colleges underscore the need for rapid acceleration in the development of occupational programs in community colleges, both at the associate degree level and the certificate level. If the community colleges enroll about 60 per cent of their students in career programs, of one or two year duration, leading directly to employment, enrolment figures in occupational programs for the four years cited above will be:

<u>1964</u>	<u>1969</u>	<u>1975</u>	<u>1980</u>
4,500	9,000	24,000 (est)	31,000 (est)

Actual enrolment in occupational programs has not yet quite reached 60 per cent -- it is moving from 50 per cent to 60 per cent. Lack of space and equipment, and inadequate budget are the primary reasons for the present situation. It will be essential for the state, therefore, to provide more adequate financial support to permit the level of growth in numbers and percentages outlined here. Our community colleges are presently rejecting a per cent of their applicants because of inadequate capacity to handle the demand. This is an undesirable situation--both for the individuals concerned and for the Commonwealth.

Part Time Students and Their Tuition

These figures reflect full time students only. In addition, the community colleges enroll, on a part time basis, almost twice the numbers enrolled on a full time basis, close to 30,000 this year (25,000 part time compared with 13,500 full time in 1968-69).

All public education is offered on the fundamental belief that society has a responsibility to individuals to assist them to gain knowledge and skills sufficient to allow them to function usefully and satisfactorily in that society, and that society must assure for its own well being the appropriately educated population to fulfill its citizenship and manpower needs. Free public education is afforded to all youth through high school and in some states through the 14th grade (community colleges). All states subsidize education in their public colleges and universities, including graduate programs, in an amount ranging from 80 per cent to 90 per cent of full per student costs.

Not only are there insufficient facilities and faculty to offer full time occupational programs in our community colleges to those who need them, but a double inequity exists for those who are unable to take full time programs. For them there are insufficient programs available for part time students during the day and evening and summer, but part time students must bear the full cost of their occupational education in community colleges. Full time students pay \$200 a year while the State pays in excess of \$700 additional for the cost of their education. Late afternoon and evening programs must take in sufficient tuition to pay for themselves. It may be argued that persons who are already employed can afford to pay for their additional education. The truth is often the opposite. Those taking part time programs are former drop-outs or former high school students who were not prepared for an occupation or were unable to attend community college full time. Their incomes are low, and their prospects without further education are unpromising. For those who can continue full time the prospect is good for a high income initially and throughout their lives.

This committee recommends that all citizens be entitled to a free education through the twelfth grade whether it is full time or part time. It furthermore recommends that youth and adults taking occupational (and other) education in community colleges on a part time basis be entitled to this education on a proportional basis to that paid by full time students. Their education should include the same counseling and other supporting services as are afforded full time students.

Summary of Recommendations

1. As community colleges move to their permanent campuses, and as additional institutions are added to the system, they should continue to stress career programs and to anticipate increased enrolments in a greater variety of occupational curricula. As stated previously in connection with enrolment projections, the community colleges should plan on a minimum of 60 per cent of their enrolment in career curricula. This would mean a growth from the present

9,000 to 25,000 -- 30,000 during the next 10 years. The state should, therefore, provide for expansion of the community college system to a total full time enrolment of over 40,000 by 1975 and over 50,000 by 1980. It is evident that present rates of building will not come close to providing for 40,000 by 1975.

3. Responsibility for most one and two years post secondary career programs not presently in community colleges should ultimately be transferred to them.

4. Any associate degree programs developed under Section 37A of Chapter 74 of the General Laws should ultimately become part of the community college system.

5. Community college presidents should chair regional planning committees responsible for coordinating post secondary level occupational programs in their service area. These committees should analyze sources and needs for programs and recommend assignments of programs to the Division of Occupational Education, the Board of Regional Community Colleges, and the Board of Higher Education. See Sec. IV, part 2 b.

6. Individuals who must pursue programs on a part time basis should receive their education through grade 14 on a parity basis with full time students. In the context of present charges part time students should pay \$200 for each 30 hours of work, with lesser academic loads charged on a pro-rata basis.

VIII. Occupational Teacher Education and In-Service Education

1. The resources of colleges and universities, not only teacher education resources, but selected academic and research resources, are required to assist present teachers and to educate new ones to implement the Careers Development Curriculum and other occupational education programs in our schools, institutes and community colleges. Properly channeling and directing these higher education resources and activities is a difficult and complex problem. The State Department of Education including not only the Division of Occupational Education but all of its agencies, must become a partner in the preparation and in-service improvement of teachers of occupational education. However, it must be clear that teacher education is primarily a function of colleges and universities and that in-service education of teachers can rarely be effectively accomplished without the resources of the colleges and universities. How to marshal these resources and programs to assure the rapid and educationally sound development of programs to retrain present teachers and to educate future teachers of occupational education is the subject of this section.

Two statements concerning teacher education and colleges and universities appear in Section I, Items 4 and 6, of the discussions of Careers Development Curriculum. The following statements are repeated:

"The assistant principal or director and the team leaders should have early and intensive, specialized instruction as to the aims of the curriculum and as to the aims, skills, materials and equipment of their particular programs. They should have intensive instruction concerning individualized scheduling and instruction and how to lead teams of teachers in the various modern methods of instruction. Where possible, para-professionals and specialists outside the school should be used."

"The Associate Commissioner should cooperate with the Board of Higher Education or other higher education agencies to assure the appointment of a committee of college and university people, people from the occupations, people from "the occupational education establishment", and others to define the aims of Careers Develop Programs, to identify the resources for in-service teacher education programs and to get them organized, first on an emergency basis, and later on a permanent basis.

As soon as the first college and university in-service programs are organized, school systems should be encouraged to associate with one or another to gain assistance in planning the first programs and getting them under way. It is suggested that at first most high schools undertake only one or two of the cluster programs, organizing only one or two teams."

Perhaps the Director of the Bureau of Post Secondary Occupational Education, who hopefully has been appointed on recommendation

of the Board of Higher Education, should be the official to chair the above committee and to coordinate the development of occupational education and of occupational teacher education. This committee urges the Commissioner of Education and the Chancellor of Higher Education to give careful consideration to who should be responsible for leading the universities and school systems to work together on the development of occupational teacher education. The responsibility should be fixed.

2. An Institute for Occupational Education

This Committee further urges that the Commissioner and the Chancellor explore the possibility of locating an institute of Occupational Education in one of the colleges or universities or other appropriate agencies and that they seek Federal or foundation funds to add to State funds to support the development of this Institute. The Institute's goals should not be to educate teachers, though it might participate in a number of teacher education programs. Rather the goals and functions of the Institute should be to develop materials both for teacher education programs and for occupational programs in the schools and community colleges. It should also furnish assistance to colleges and universities and school systems in planning and implementing teacher education programs. The Committee emphasizes again that the different kinds of instruction and curriculums required for the Careers Development Program and for much of other occupational education are of overriding importance. Without good teachers properly educated who have appropriate supplies, equipment, and assistance, occupational education will expand far too slowly and frequently will not be relevant to the youth and adults they should serve or to the needs of industry and the State economy.

3. The Nature of Occupational Teacher Education

Foregoing descriptions of the Careers Development Curriculum in Section I attempt to make clear that the aims of the programs derive from general education; they are general education as well as occupational education. Thus, teacher education for the teachers who will be parts of the teams in the new curriculum has much in common with the education of most other teachers, whether English teachers, science teachers, or art teachers. Of course, one or two members of each team must have specialized knowledge and skills in the general range of the occupational cluster presented.

One of the most difficult problems in all American education is the failure of instruction to adopt and reflect new knowledge and methods concerning subject matter, the nature of learning, and human relations. Few schools make use of the full scope of educational technology, individualized instruction, large group instruction, differentiated instruction including team teaching, experiences available outside the school, and of the many contributions possible from the whole range of pupil services. No school makes full use of all of these.

At the levels of the education system in which occupational education occurs, the greatest rigidities are to be found in the academic

areas of college preparation and in the specific programs of training for a particular occupation. These rigidities are reflected in the so-called general course programs for youth who do not prepare for college or for a job.

Quite obviously teaching and teacher education should improve in all kinds of education. However, this committee believes that the general agreement over the weaknesses and inadequacies of education for the general students, combined with lack of institutionalized pressures which are found in college preparation and education for specific trades, combine to give promise that there should be more willingness to experiment and to use our best and latest knowledge about teaching and learning. In the programs for general students, teacher educators, administrators and teachers can agree that present traditional methods and courses are largely failing for this middle group of students who are not preparing for any specific goal. Experimentation should not bring resistance from academic teachers and college admissions officers. What is needed is the stimulation and organization of experimental programs for these students in colleges of teacher education, in the comprehensive and vocational schools, and in the Department of Education.

To highlight the philosophy and goals of teacher education programs in general and for occupational education, Dr. James J. Hammond, President of Fitchburg State College, has prepared the accompanying essay on teacher education. It appeared to the chairman of this Committee that the ideas in the essay are of vital importance as a background, not only for programs of occupational teacher education, but for the programs of occupational education, itself. As the style of the essay does not lend to inclusion in the basic recommendations without change and reduction, the chairman is grateful that Dr. Hammond has consented to the inclusion at the end of this report of the entire essay.

IX. Organization of the State Department of Education

1. Schaefer and Kaufman recommend that the then bureau of vocational education be reconstituted as a division of Manpower Research and Development administered jointly by the State Department of Education and the State Department of Labor. A summary of their recommendations follows:

1. A Bureau of Manpower would have as its responsibility the Institutes of Educational Development. (Occupational Institutes)
2. A Bureau of Research would be responsible for the collection of data and conducting of in-depth studies to assure accurate measures of the number and type of job vacancies throughout the State.
3. A Bureau of Development would be concerned with the short-range and long-range planning necessary to implement the research findings.
4. The Division of Manpower, Research and Development would report to the Commissioner of Education

for operational and developmental activities and to the Commissioner of Labor for research activities.

5. The Division of Manpower, Research and Development should have a legally designated advisory committee appointed by the Governor and representing industry, business, labor, education, the behavioral sciences, and the Federal government.

6. The Director of the Division of Manpower, Research and Development would serve on the staffs of both the Commissioners of Education and Labor as Assistant Commissioner to each.

7. The Careers Development Curriculum should be under the general supervision of the Associate Commissioner of Curriculum and Instruction and should be administered by a separate Bureau of Careers Development. The Bureau of Careers Development should be headed by an educational generalist.

The Committee concurs with Schaefer and Kaufman that there should be close cooperation between the Departments of Education and Labor and with the functions and basic responsibilities assigned to the Division. The Committee does not concur with a joint administration of the Division of Occupational Education because it does not believe in joint or divided authority. The committee position is as follows:

2. The State Department of Education

a. Scope and Responsibilities

The Committee early recommended and is gratified that the Legislature and the Congress have mandated that the State Department of Education must assume legal responsibility for the administration of state and federal regulations and policies for occupational programs in all schools at all levels through the fourteenth year of post-secondary education, for adult education at these educational levels and for the distribution of state and federal funds. Because of its involvement in higher education, occupational programs in community colleges, it must achieve a satisfactory and formal articulation with the officers of the Boards of Higher Education and of Regional Community Colleges, and of other higher education boards if teacher education is involved.

The State Department of Education should be appropriately and sufficiently staffed to fulfill the above responsibilities and to assist occupational education programs in all schools and at all levels to develop programs, staffs, and facilities.

The Governor's Advisory Council on Vocational Education and the Commission on Occupational Education include representatives of the above State and Federal manpower agencies and others. The Associate Commissioner for Occupational Education, using the assistance of the Commissioner of Education where required, should communicate frequently with his counter-

parts in other state agencies and should use his full authority and efforts to realize the above relationships.

b. Organization

Schaefer-Kaufman recommended that the Bureau of Vocational Education be elevated to a Division of Manpower Research and Development. The Committee early agreed that the status of vocational education and the extent of its functions require that the Bureau of Vocational Education be elevated to the status of a Division. The Committee is gratified that recent state legislation has so provided.

c. Articulation with higher education and manpower, industrial and labor agencies.

Even though Federal Law requires a broadly representative Advisory Council on Vocational Education, this Committee has held that the involvement of all elements in occupational education, particularly the involvement of higher education, requires a formal, legal commission on occupational education within the Department of Education and advisory to it. The Committee is gratified that recent state legislation has established such a commission.

3. Annual Report on Manpower Needs

The Federal Vocation Education Act, through provision for a state master plan and an advisory council on vocational education, seeks to assure the collection of appropriate data and the creation of a comprehensive and coordinated plan. The recently created commission on occupational education of the State Department of Education has similar aims. Schaefer-Kaufman made similar recommendations, one provision of which was creation of a division of Manpower Research and Development jointly administered by the Departments of Education and Labor. The State Board of Education has basic responsibility for all public vocational education, but other agencies have concurrent responsibility, particularly for manpower research and placement.

This committee recommends that the Commissioner of Education convene annually in January the Commissioner of Labor and Industries, the Director of the Division of Employment Security, and other top state officials who have a stake in manpower research and development and cause to be prepared for the State Board of Education and all agencies concerned with occupational education an annual report for distribution in May including a summary on the adequacy of manpower information relative to need and training and the plans for various educational institutions of the state to meet them. In the first meeting determination should be made as to who shall prepare and publish the report. Every effort must then be made to assure the required budget and a speedy manner of printing so that the information will be available promptly.

X State Requirement for Provision of Vocational Education for all Youth

Chapter 74 of the General Laws make the following provisions for

vocational education:

"Section 2. Powers of Commissioner. The commissioner, under the direction of the state board, shall investigate and promote distributive occupations, industrial, agricultural, household arts education and practical nurse training, and initiate and superintend the establishment and maintenance of schools for the aforesaid forms of education, and shall supervise and approve such schools as provided in sections one to thirty-seven, inclusive.

Section 3. Establishment by towns. Towns may, through school committees or boards of trustees elected for not more than five years, and known as local trustees for vocational education, establish and maintain independent distributive occupations, industrial, agricultural, household arts and practical nurse training schools.

Section 4. District vocational schools. District trustees. Independent distributive occupations, industrial, agricultural, household arts and practical nurse training schools may be established and maintained by districts composed of two or more towns, through boards to be known as district trustees for vocational education, consisting either of the chairman and two other members of the school committees or of three residents of each, to be elected by the towns.

Section 5A. Vocational schools in regional school districts. Independent distributive occupations, industrial, agricultural and household arts schools may be established and maintained by regional school districts established under sections fourteen and fifteen of chapter seventy-one if the agreement for the establishment of the regional school district, either as originally adopted or as subsequently amended, so provides, and for that purpose the regional district school committee shall have the powers and perform the duties conferred or imposed by law upon local trustees for vocational education, and may be known as a board of regional school district trustees for vocational education.

Section 7. Admission of non-resident pupils. Residents of towns in the Commonwealth not maintaining approved independent distributive occupations, industrial, agricultural, household arts and practical nurse training schools offering the type of education desired, or children placed in such a town by the commissioner of public welfare or by the trustees of the Massachusetts training schools, may, upon the approval of the commissioner under the direction of the state board, be admitted

to a school in another town. In making his decision, the commissioner under the direction of the state board shall take into consideration the opportunities for free vocational training where the applicant resides, the financial status of such place, the age, sex, preparation, aptitude and previous record of the applicant, and other relevant circumstances.

Note

No age limit is set by statute. (See Cp. A.G., October 28, 1960, to Commissioner Owen B. Kiernan). House 919, 1961 Session of the Massachusetts legislature, attempted to limit this to students who have not "completed twelve years of formal education." This bill was rejected by the legislature." (Chapter 74)

This committee believes that it is the responsibility of the state to assure occupational education programs to meet the needs of youth in all communities in the state. To this end it recommends that the Board of Education define minimum opportunities for occupational education and then require that all communities develop plans to assure that these opportunities are available to their youth not later than September, 1974. These opportunities should be provided where possible within school systems large enough to provide for a comprehensive system of secondary education including careers development curriculums and occupational institute programs. Where school systems are too small, they should seek to join other systems in a unified school district or they should seek to join a regional high school and/or regional vocational school district or they should contract with another school district to admit their students into the required variety of occupational programs. If such a contract cannot be arranged on a per-pupil tuition basis in such a manner as to insure sufficient places in sufficient variety, then the school system should be required to contract with a receiving system at a specific annual rate of remuneration. Such a rate of remuneration might include amortized costs of construction and equipment. If the school system demonstrates good faith in seeking to join larger school districts and fails in that effort, the Commissioner of Education should have authority to require larger school districts to enter into equitable contracts to provide the occupational education required.

If the State Board of Education lacks authority to assure the above provisions, the Legislature should grant it such authority forthwith. The accident of the residence of a child or youth should not prevent him from receiving clearly defined minimum education opportunities and services.

On Teacher Education for Occupational Education
Dr. James J. Hammond, President
Fitchburg State College

Achieving occupational education goals, cited in this report, requires considerable redirection and reorganization of current vocational teacher education programs. Most educators have long recognized the need for new approaches, new methods and new tools in teaching. There is a growing awareness of a need for finding means of increasing teacher productivity; of providing means and methods enabling ordinary persons to become capable teachers at one level or another. Many teacher educators have initiated new methods of achieving individualization and personalization of learning and have sponsored considerable research to find more rational bases for identifying and organizing content. Teacher education courses, which formerly were dominated by lecture, discussion and activities that were little more than a reality exposure or a form of apprenticeship are now shifting to procedures that are clinically and case study oriented.

Advocates of various approaches differ in emphasis but are in agreement that more systematic analysis has to be made of all components of the teaching-learning process. There is agreement that teachers in preparation must share more effective instructional experiences. Under so-called cognitive approaches, emphasis is on reasoning generated from analyses of selective vicarious experiences rather than reliance on direct experience. In the behavioral approaches the emphasis is on analysis, description and understanding of the teaching task. A third approach is based on studies of the characteristics and qualities of teachers themselves.

Implementation of the report's proposals calls for utilization of empirically tested knowledge as a basis for making important decisions about courses, professional experiences and student teaching. It is essential that teacher education be studied in ways that will produce validated predictions about cause-effect relationships. In this connection it is recommended that a team of specialists be selected to guide a program of research and experimentation in occupational education. Such a team could include, in addition to teacher educators and teachers of schools and institutes, behavioral scientists, subject matter specialists, industrialists, businessmen, representatives from labor and others.

Although teacher education is primarily a function of colleges and universities, it is necessary to maintain close collaboration among the various agencies and institutions involved in the overall enterprise. Cooperative ventures and partnership arrangements are currently being established in order to facilitate a more realistic study of teaching. These arrangements go beyond theoretical propositions about teaching and thus achieve a breakthrough in the implementation of new ideas based on research and study.

The colleges and the universities engaged in occupational teacher education, the State Division of Occupational Education and selected schools and career institutes of Massachusetts can combine in a systematic

study of both occupational education and teacher education. These agencies can and should become partners and collaborate in the development of an efficient and effective teacher education program. Each has its unique contributions to make. Each has its own bailiwick. The role of the college is scholarly investigation, theory building and disciplinary study learning on teacher education. The major role of the schools and institutes is to readapt their practices on the basis of new knowledge including evaluation of new approaches. The role of the college is scholarly investigation to build theory for experimental findings and for the contribution of those disciplines which have a bearing on instruction. The State Division of Occupational Education is responsible for overseeing the overall operation with particular concern for legislative and financial considerations.

This proposal recommends a design to bridge the gap between imaginative, creative theorists and researchers on one hand and the teacher practitioners in schools and institutes on the other. It suggests means of implementing new research-based educational ideas sooner which might well add impetus to experimentation and innovation at all levels.

The college or university engaged in teacher education should involve itself in real school situations in such a way that it advances knowledge on the one hand and performs service on the other. It cannot operate effectively in isolation. Schools and institutes are not only the testing ground for application of theory; they are a setting for generating new ideas. They provide the feedback out of which refinements, extensions or revisions are made. Each agency has a basic contribution to make to the program of teacher education. The role of each is different and a careful delineation of roles and functions will have to be determined.

There is nearly universal agreement that a clinical approach to teacher education is a necessity. It is also generally accepted that such an approach requires a more thoroughgoing, systematic analysis of the teaching process than what is feasible under the conventional observation, participation and student teaching syndrome. Clinical experiences can be strengthened considerably through the partner relationship of colleges, schools, institutes, the state department and pertinent professional agencies. While direct experiences are essential, the appropriate kind and amount are too frequently not available at a given time and place. Furthermore, the number of variables is such that it is a matter of chance or happenstance that a given student obtains the kind and amount of experience he needs. Selected experiences must be accumulated so that the data to be studied and analyzed are comprehensive, varied and typical. Thus it is very likely that the clinical experiences will rely heavily on simulated activity using such means as videotapes and audiotapes as the "prepared" material for study. Prospective teachers must be involved in the collection of these materials and in the analysis, application and evaluation of their use.

Experimental pilot programs should be established as soon as possible. There should be pilot programs for each level, e.g., elementary school, middle and/or junior high school, senior high school, career or occupational institute, community college, four year college and university. These programs should also be cooperative ventures.

In the program proposed the split between knowing and doing must disappear. Such a division was never justifiable and it is now no longer tolerable. The twentieth century technologies do not admit distinctions between the universe of matter and the universe of the mind. It is a serious error to consider technology as separate and outside of the culture rather than as an integral part of it. Likewise it is a serious error to confine the investigation of knowledge based occupations to shops and laboratories, to skills and techniques, to procedures and practices. An interdisciplinary concept is a natural for occupational education and especially so at the teacher education level. Occupations cannot be defined in terms of the traditional disciplines or standard school subject titles. The spread of the interdisciplinary approach is a symptom of the shift in the meaning of knowledge from an end in itself to a resource, a means to a result. End results are interdisciplinary of necessity.

Starting a new program provides an opportunity to break with tradition and to provide interdisciplinary experiences in lieu of the usual array of discrete courses in the standard academic subjects. Students and teachers in service, pursuing their studies on a part time basis, should not only have the opportunity but should also be encouraged to follow the broad field approach, to seek knowledge and skills basic to the solution of contemporary, relevant social, economic, or technological problems. The nature of the problems will require investigation and application of concepts of several disciplines. Such studies can and should be substantive as well as interdisciplinary.

Professional courses such as child study, psychology, principles of teaching, and test and measurements, should be integrated with laboratory experiences. Child study should be as much sociological as psychological and should readily reveal the conditions and forces which contribute to personality development and intellectual growth.

Content and method will be combined as teachers work out solutions to problems and as they explore given fields of interest. Such courses will not be completed until teachers are able to demonstrate in their own classes their newly acquired concepts of teaching and their ability to select appropriate media and experiences, to diversify and individualize instruction and to aid each student to develop his own learning capabilities. The traditional method of organizing courses in accordance with what appeared to be the logical arrangement of the subject matter of a field is being replaced by efforts to organize knowledge and the search for it around areas of application.

Pre-service teacher education programs should incorporate general technical and professional education. The graduate of this program should have a solid background of general knowledge acquired or accumulated out of several blocks of interdisciplinary experiences wherein knowledge is sought for its application to significant problems or centers of interest. Courses should not be divided into general, technical, or professional categories. Learning how to learn can be developed in a pragmatic way. So can communicative skills. Proficiency in math and science can be developed without undergoing a set series of subdivided courses. It is

essential that graduates have a comprehensive yet integrated knowledge of contemporary society. They should have a liking for and general knowledge of the fine or applied arts with an interest in at least one. Applied arts can be the vehicle for many art interests and such interests can be related to fine arts areas.

The amount and kind of occupational experience essential to successful teaching is a moot question. There is bound to be controversy over the suggestion that it is not necessary to be a highly skilled, proficient practitioner of journeyman status in order to teach an occupational field. It has been an unchallenged assumption that one could not teach a craft unless he were skilled in it himself. Under this view an athletic coach would have to be a skilled performer. There are numerous exceptions which prove such need not be the case. Of course a teacher should know his field but knowledge of subject need not be equated with occupational experience. There is an abundance of evidence that the foundation of jobs whether skilled or unskilled is knowledge.

The essential contemporary skills are based on knowledge. The productivity of tomorrow's workers will depend on their ability to put concepts, ideas and theories to work. It is advocated that the way to teach a skill today is to consider it on a knowledge foundation and teach it through a program of studies. Systematic learning has been substituted for exposure to experience. The new industries will employ predominantly knowledge workers rather than manual workers. Even the academically slow student needs the knowledge foundation to have any skill worth having. In the emerging industries the systematic acquisition of knowledge, that is, organized formal education has replaced experience - acquired traditionally through apprenticeship - as the foundation for productive capacity and performance. Emergency training programs of World War II demonstrated conclusively that once the experiences of a craft could be converted to a systematic program, training in manual crafts could be compressed into weeks or at most months so that the ordinary person, without special native talent or intelligence, could become a highly skilled craftsman in a short time.

The student who has once acquired skill on a knowledge foundation has learned how to learn. He can acquire, readily, new and different skills. This foundation should enable him to unlearn and relearn since the process is largely modifying, transferring principles and concepts.

Since the prime goal of teachers will be to assist students in learning how to learn, which, in this case, will be largely the systematic acquisition of knowledge as foundation of performance, skill and achievement, such a universal skill should be a prime goal of teacher education.

During the period of transition from existing programs to those recommended, the nature and role of in-service education will be critical. Retraining of teachers of every level will be required. Elementary school teachers will need indoctrination in concepts of occupational educational experiences appropriate for the first six grades. In the junior and senior high schools teachers of industrial arts, home economics, business and office occupations, health related fields and other career-oriented areas will need varying degrees of retraining. Occupational

studies will be undertaken through broad-based, comprehensive experiences in a selected area of technology. Basic concepts and principles will have precedence over facts, skills and techniques. The experiential approach remains the prime methodological vehicle. Not only will additional bodies of knowledge and skill be needed but basic views in methods of teaching will have to be modified considerably. The clinical approach should have priority in the continuing education of teachers as well as in pre-service programs of student teaching and internship.

Serious and prompt action should be taken in establishing programs of teacher education for the staffing of technology programs in community colleges. These programs can relate to many occupational fields. Massachusetts has a great need for the technicians that can be prepared in community colleges. Teachers of shops and laboratories should be well rounded in technical knowledge, in advanced mathematics and in science, particularly physics. They must be well prepared in teaching.

Massachusetts needs a vast number of people capable of using theory as the basis of skill for practical application. These are technologists rather than skilled craftsmen. They possess the ability to apply knowledge to work. The community college will do well to consider such broad technologies as transportation, communication, housing, water supply, sewerage, clean air, clean water, and waste disposal when reviewing plans for new programs.

The concept of differentiated teaching roles is uniquely appropriate to the teaching of occupations. Consideration should be given to a variety of staffing levels including paraprofessionals, technicians, instructors and management personnel. The occupational fields represented in the schools, institutes and community colleges have within themselves several levels of competencies. Some of these people may qualify as aides, assistants or associates. They may perform given teaching functions appropriate to their level of training and competence. They can supervise practice in skill training, can coach individuals and small groups, assist in the preparation of instructional materials, prepare, operate or direct the operation of appropriate instructional media and can maintain instructional equipment in working order. Differentiated teaching can provide multiple entry points into occupational teaching. It can also provide a training base for the various staff roles needed in teaching.

Teachers of occupations whether in schools or institutes should qualify for certification. It is anticipated that changes in certification as recommended by Lindley J. Stiles for all areas of teaching will include appropriate measures for certifying teachers of occupations. These teachers should have comparable qualifications in what is now called general education. Their major qualification should be the ability to perform as teachers.